

# **IMPLEMENTATION OF iRAP: IN-COUNTRY TEAM-COLLABORATION AND CAPACITY BUILDING**

**By**

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## **ABSTRACT**

Malaysia is among four pilot countries who have implemented the pilot programme for the International Road Assessment Programme (iRAP). When this programme was introduced in Malaysia, efforts from inter-agencies, both private and government sectors played a major role in its success. Having surveyed 3,600km of roads in Malaysia, the road agencies are committed to implement the countermeasures recommended in order to evaluate the effectiveness thus closing the loop to the implementation of the programme.

Collaboration and coordinating efforts is vital in the success of this programme. This paper will focus on how the in-country teams can ascertain that the programme carries on after the International expert group leaves the country. The formation of the steering committee for the implementation of the programme is only one aspect, while the capacity building of road raters, purchasing of equipment required carrying out the survey and the commitment from the road agencies to implement and evaluate the countermeasures needs to be planned and budgeted for.

The global partnership may have been established but to ascertain that this programme is sustainable by the in-country teams, it needs a lot of collaborative efforts. Malaysian Institute of Road Safety Research has been entrusted to take up this responsibility especially in the capacity building aspect. MIROS is also evaluating the countermeasures recommended after it has been implemented.

Keywords: iRAP, inter-agencies, collaborative efforts, sustainable programme, capacity building.

## **1.0 INTRODUCTION**

The four countries where iRAP has been introduced are South Africa, Chile, Costa Rica and Malaysia. The iRAP programme was first introduced in Malaysia in 2007. A total of 3,700km of road network in Malaysia has been surveyed. This included both tolled expressways and the untolled Federal trunk roads linking major towns. When it was first introduced the Automobile Association Malaysia (AAM), the Road Safety Department (JKJR) and the Malaysian Institute of Road Research (MIROS) were the key initial players from the In-Country team. The collaborative efforts required were recognized and several more agencies were roped in into the team. The road Authorities are committed to implement the countermeasures recommended in order to evaluate the effectiveness thus closing the loop to the implementation of the iRAP programme.

## **2.0 BACKGROUND**

iRAP is an assessment of the road environment by capturing images using mounted cameras on vehicles and rated on its safety using software developed by the ARRB. There are a total of thirty three parameters that is required to be rated. The inspection or rating will identify the design elements which influence the likelihood of crashes and its severity.

In the efforts to reduce road fatalities and injuries throughout the world, the safe system approach is adopted. It is important that the road environment is safe for road users and in cases where there are errant vehicles, the road users will still survive the crash. In order to evaluate the safety of the road environment, iRAP is used as a tool to benchmark the safety of the road environment. iRAP is a way to ensure that the roads are more 'forgiving'. The safeness of the road environment is given by the star ratings; a five star road is the safest.

Through iRAP the countermeasures are proposed via analysis and the investment appraisal. They are ranked from proposals with the highest investment return to the lowest. Fundings of projects have always been the major concern in most countries when budget is scarce. Thus the countermeasures which give the highest return can be chosen and implemented soonest. With the implementation, it will elevate the safety level of the road environment, thus reducing fatalities and injuries.

This paper will focus on how the in-country teams can ascertain that the programme carries on after the International expert group leaves the country. The formation of the steering committee for the implementation of the programme is only one aspect, while the capacity building of road raters, purchasing of equipment required to carry out the survey and the commitment from the road agencies to implement and evaluate the countermeasures needs to be planned and budgeted for.

## **3.0 KEY STAKEHOLDERS**

In each country where iRAP programme is to be implemented, all the road stakeholders are to be identified. This is to ensure that every stakeholder understands the responsibility each agency holds in the implementation of iRAP. In Malaysia the initial pilot study was carried out by these local and International bodies:

Automobile Association Malaysia (AAM)

Road Safety Department (JKJR)  
 Malaysian Institute of Road Safety Research (MIROS)  
 Australian Automobile Association (AAA)  
 ARRB Group

This iRAP programme in Malaysia is also supported by:

Ministry of Transport (MOT)  
 Ministry of Works (MOW)  
 Public Works Department (JKR)  
 Malaysian Highway Authority (MHA)  
 Malaysian Road Transport Department (JPJ)  
 Royal Malaysian Police (Police)  
 Universiti Putra Malaysia (UPM)  
 Kumpulan IKRAM Sdn Bhd (IKRAM)  
 Toll road operators (PLUS and MTD)

These organizations identified shall become the key stakeholders for the in-country team in Malaysia, for iRAP to be successful in the future in Malaysia; there must exist a lot of collaborative efforts and coordination between all stakeholders. Table 1 shows the key stakeholders and Table 2 describes the scope of work for each stakeholders.

Table 1: Key Stakeholders in the iRAP Malaysia

Coordinator	Road Authority	Research Body	Enforcement Body
Automobile Association of Malaysia (AAM)	Ministry of Works a) Public Works Department (PWD)	MIROS IKRAM	Police JPJ
Road Safety Department (JKJR)	- <i>Road Safety Unit</i> - <i>Road Maintenance Unit</i> - <i>Highway Planning Unit</i> b) Malaysian Highway Authority (LLM)	Road Safety Research Centre, UPM	
	PLUS Expressway Berhad		
	MTD Capital		

Table 2: Scope of Work of Key Stakeholders

Key player	Scope of work
<b>JKJR and AAM</b>	<ol style="list-style-type: none"> <li>1. To coordinate iRAP Malaysia activities.</li> <li>2. To coordinate iRAP Malaysia activities with other iRAP studies in other countries</li> </ol>
<b>PWD, LLM, PLUS and MTD</b>	<ol style="list-style-type: none"> <li>1. To plan and obtain funding for countermeasure implementation works.</li> <li>2. To carry out countermeasure implementation works.</li> <li>3. To carry out road inspections on federal and state roads.</li> </ol>
<b>MIROS and other research bodies</b>	<ol style="list-style-type: none"> <li>1. To determine locations for the implementation of countermeasure programs.</li> <li>2. To carry out evaluation studies on the implemented countermeasure programs.</li> <li>3. To process road inspection data.</li> <li>4. To publish findings of evaluation studies.</li> </ol>
<b>Police and JPJ</b>	<ol style="list-style-type: none"> <li>1. To provide crash data to support research agendas</li> </ol>

#### 4.0 iRAP MALAYSIA FRAMEWORK

The framework for future iRAP Malaysia shows the process of different stages of the implementation from the planning, survey, data processing, implementation of countermeasures, monitoring and evaluation. MIROS will identify the routes to be surveyed and inspected, followed by the inspection itself to be led by the road authorities. The data coding and star rating process will be a collaborative effort between the road authorities and MIROS. The analysis and generation of the countermeasures, ranking of programmes will be led by MIROS.

Once the countermeasures programs are generated, the packaging of the programs, calling of tenders for implementation, handling contractual matters will be the responsibility of the road agencies. This is important as the amount of funds allocated will be used effectively on the countermeasures program that gives the highest return.

The baseline engineering data for proposed countermeasure will be collected. On completion of the physical improvement, the post data collection will be done. Analysis and evaluation on its effectiveness will be carried out. Figure 1 shows the framework of the iRAP Malaysia showing its processes.

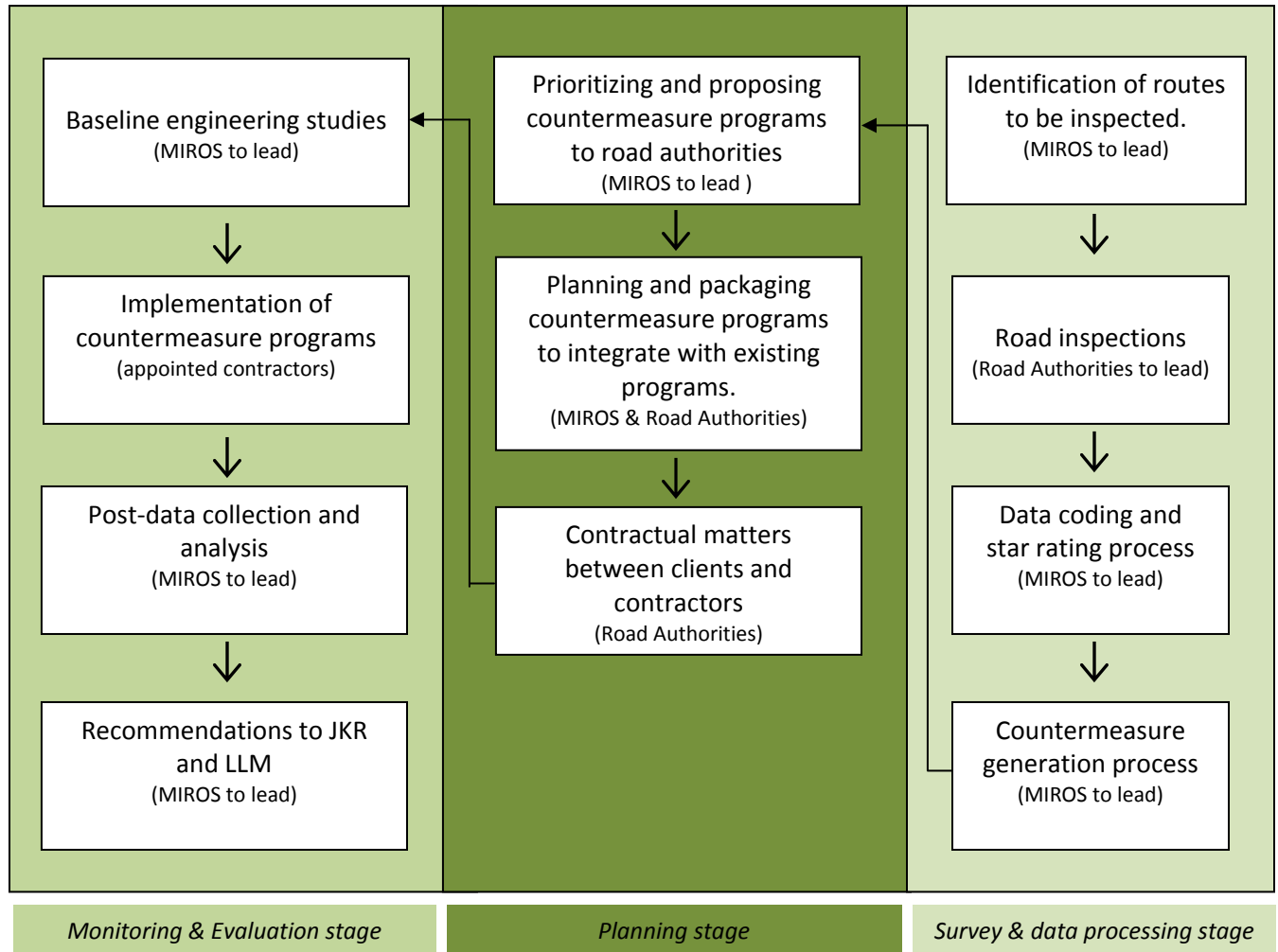


Figure 1: The Framework of iRAP Malaysia

## 5.0 CAPACITY BUILDING

The in-country team has to support the implementation of the iRAP programme in terms of capacity building for it to be sustainable in the country. The involvement of the in-country team with the initial help from the International collaborators is important. The survey of the road network has to be carried out by the local group with the help of iRAP/ARRB team. The ratings of the road network can easily be done by the local group provided the local group is trained. In Malaysia as example, the ratings have been taught to several agencies like MIROS, JKJR, MHA, JKR, IKRAM and several others. However it is important that one agency be responsible in the capacity building. MIROS has been identified to play that role in the Malaysian in-country team. Figure 2 shows the roadmap of iRAP in Malaysia and the role MIROS play in capacity building.

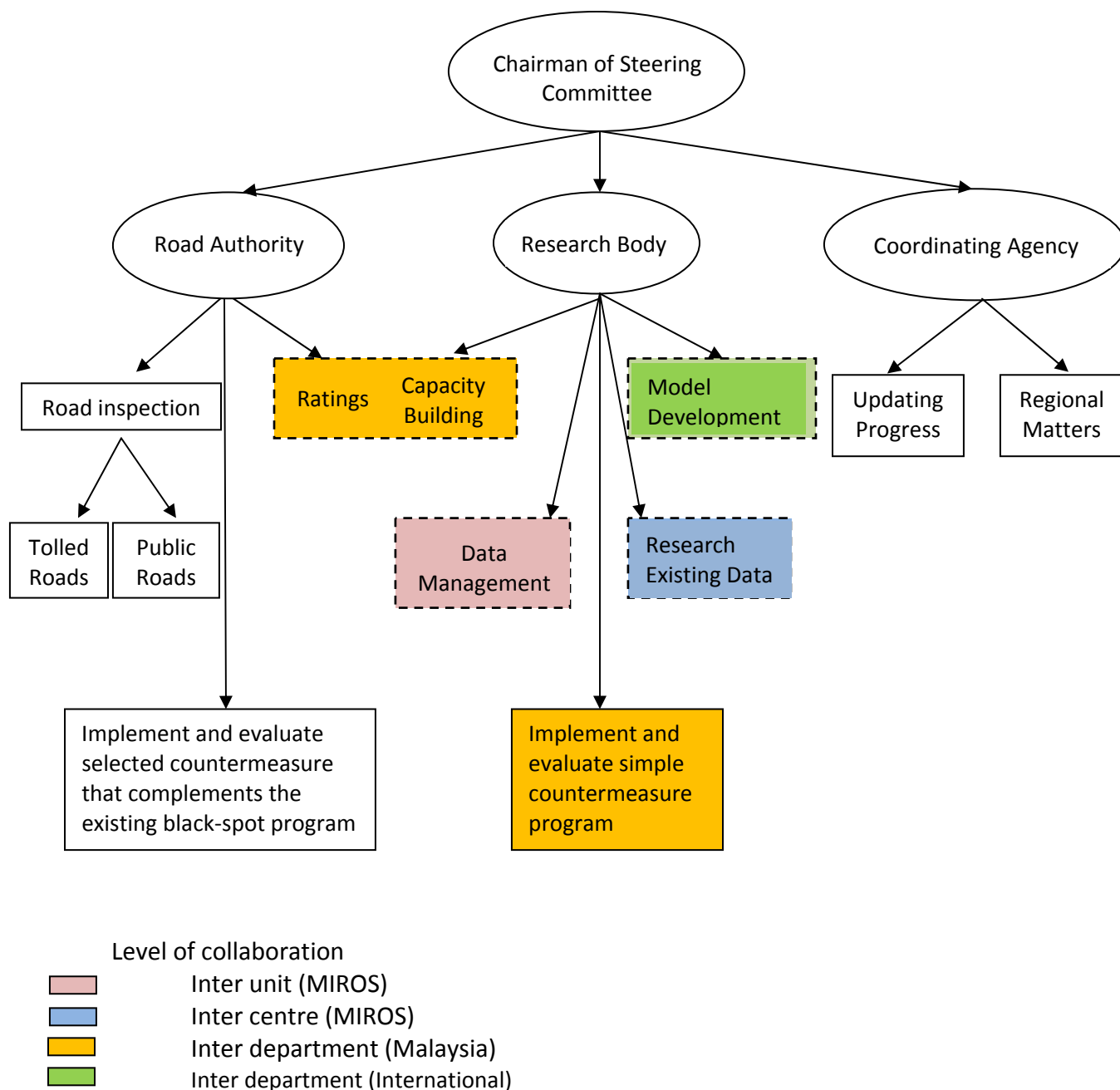


Figure 2: The Roadmap of iRAP Malaysia

MIROS, with the help of the iRAP team shall conduct training for the in-country team for the rating of the road network. Representatives from the road authorities will be trained to do the rating process. MIROS will further play an important role by churning research from the entire countermeasures programme. MIROS is also given the responsibility in developing models that is more suited to the Malaysian environment.

## **6.0 IMPLEMENTATION STRATEGY**

The Road authorities are the key agencies in implementation of the iRAP programme. Fundings have to be allocated for the implementation of iRAP. The scope for the funding includes the survey of the road network and the implementation of countermeasures identified in the analysis. It is vital that the planning for the implementation of iRAP is included in the road safety budget at the Head Quarters level as well as at the State and District level.

In Malaysia, the administration of roads is divided based on expressways, Federal, State and Municipality roads. The funding is from different sources. Thus for the iRAP programme to be successful the planning for the bidding of funds have to be carefully strategised. The road network has to be surveyed, then rated and analysed, and implementation of countermeasures. The ranking is based on the benefit-cost ratio of each implementation programme that resulted from the analysis. The implemented countermeasures are then monitored and evaluated to ascertain its effectiveness.

## **7.0 CONCLUSIONS**

The success of implementing the iRAP programme in any country cannot be measured by the success of implementing its pilot study alone. For the programme to be sustainable, the importance of buying in of the key stakeholders must be recognized. The road authorities have to be a major part of this programme. They are the custodian of the roads and they have to bid for funds for the iRAP programme to be successful. iRAP has to be seen as a tool to bid for the funds.

The global partnership may have been established but to ascertain that this programme is sustainable by the in-country team, it needs a lot of collaborative efforts between the key stakeholders. MIROS has been entrusted to take up this responsibility especially in the capacity building aspect for the Malaysian in-country team. JKR and MHA are the main implementing agencies to get the physical improvement done. Evaluation of the effectiveness of the countermeasures will have to be carried out with joint efforts. Similarly in other developing countries where there is a plan to implement the iRAP programme, the collaborative efforts should, without fail takes place to ensure the success of the iRAP programme.

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N.B: Jamilah Mohd Marjan is a staff of the Public Works Department Malaysia (JKR), on secondment to the Malaysian Institute of Road Safety Research (MIROS).